

[54] **TRANSCONTAINER FOR FLOWABLE MATERIAL**

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[51] Int. Cl. **B65d 7/04, B65d 7/44**
[58] Field of Search **220/1.5, 71, 1 B, 22, 83, 220/73**

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Primary Examiner—Samuel B. Rothberg
Attorney, Agent, or Firm—Craig and Antonelli

[57] **ABSTRACT**

A transcontainer for flowable material comprising a liquid-tight tank formed together with an external frame. The tank including at least partially outwardly convex outer wall elements and an intermediate internal wall connected to the adjoining outer wall elements at an obtuse angle.

33 Claims, 20 Drawing Figures

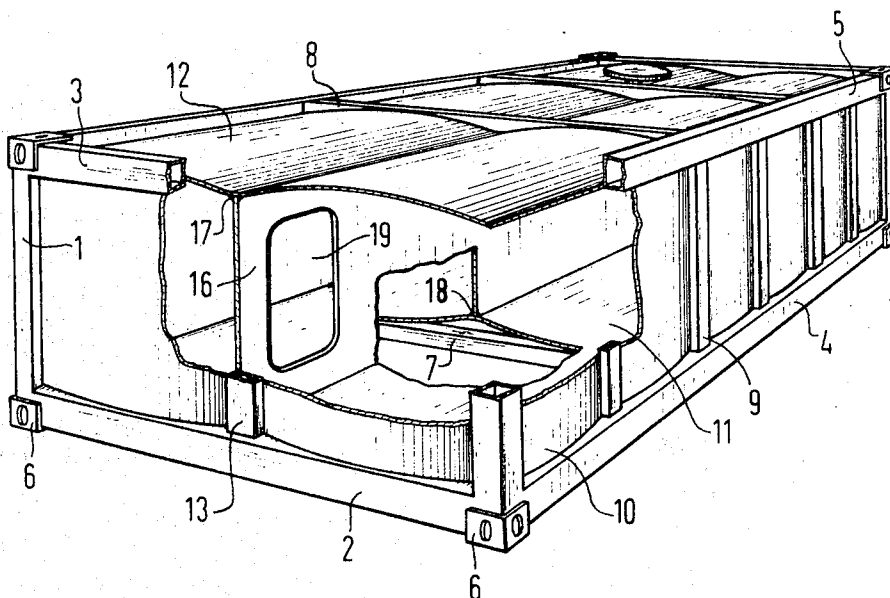


Fig. 1

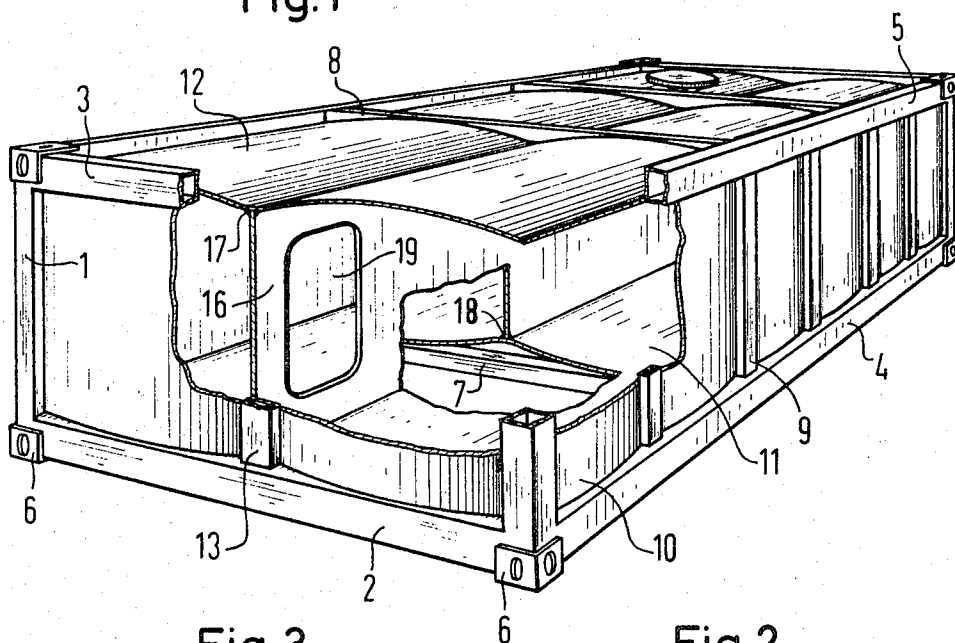


Fig. 3

Fig. 2

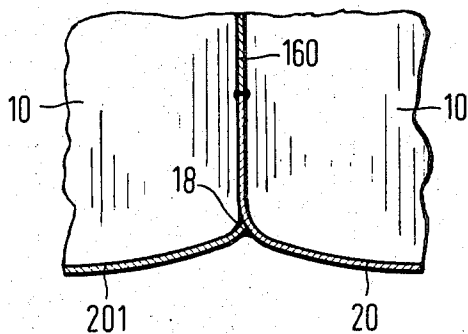


Fig. 4

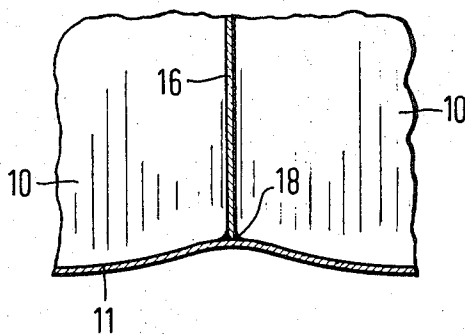
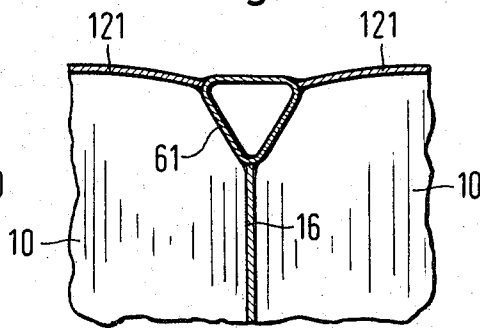
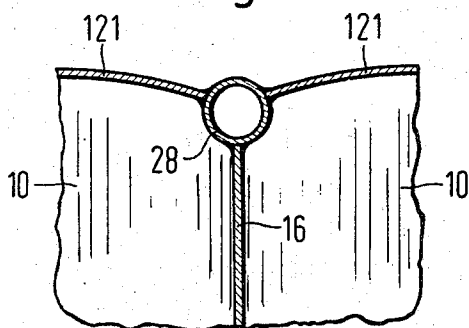


Fig. 5



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Fig. 6

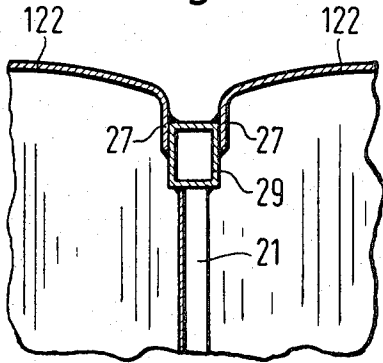


Fig. 7

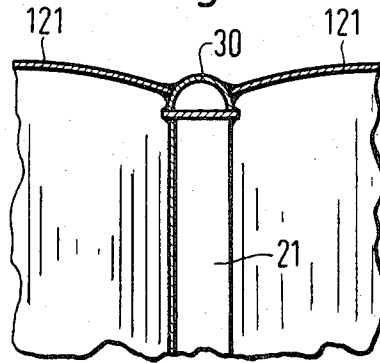


Fig. 8

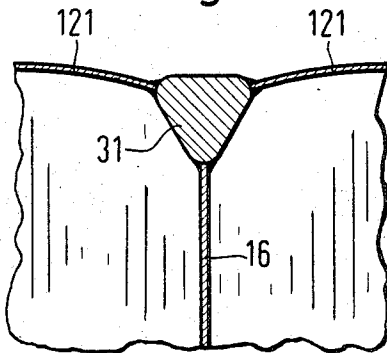


Fig. 9

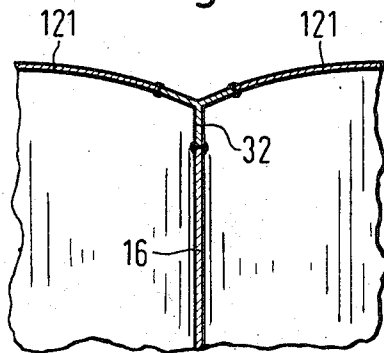


Fig. 10

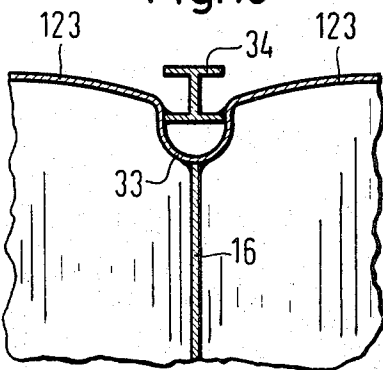
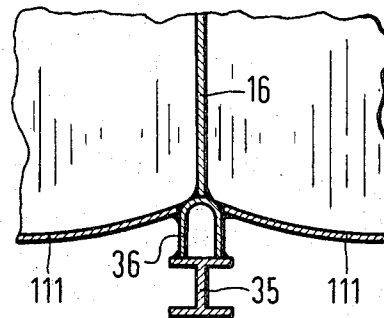


Fig. 11



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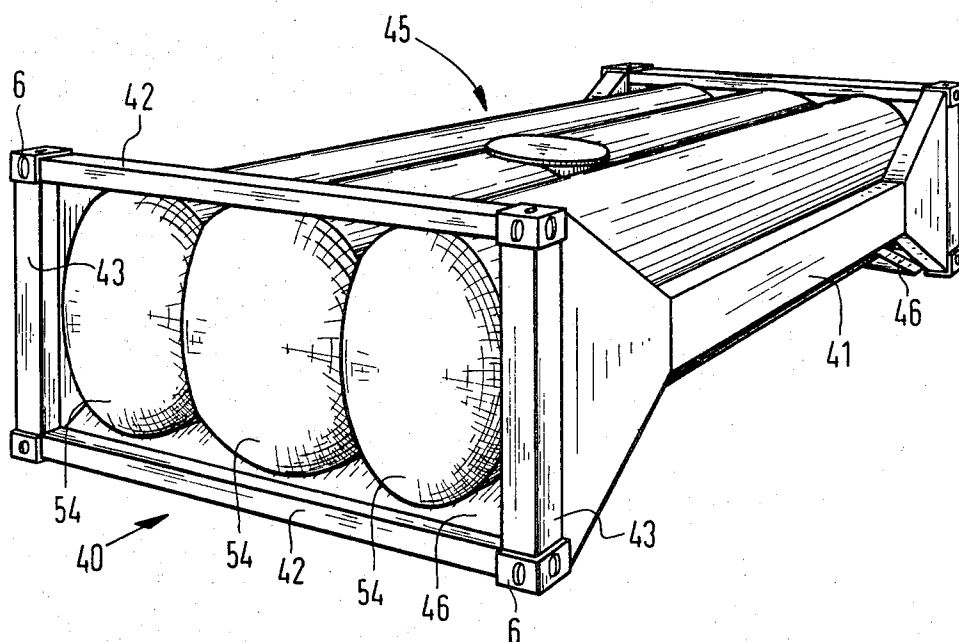
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Fig.12



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Fig.13

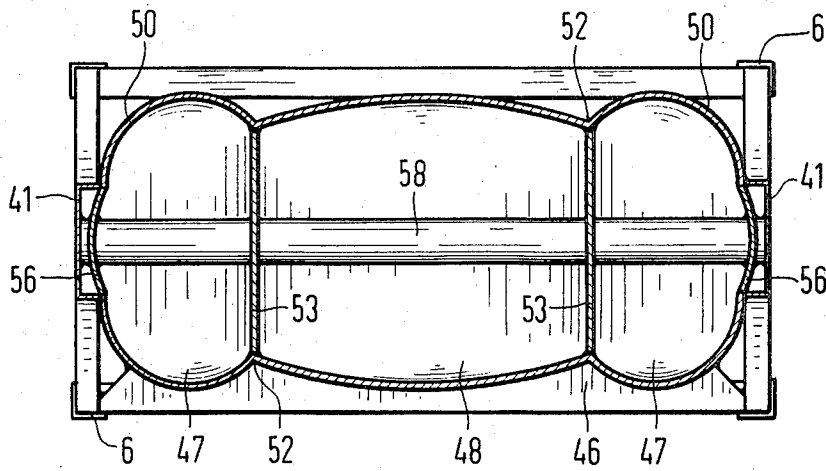
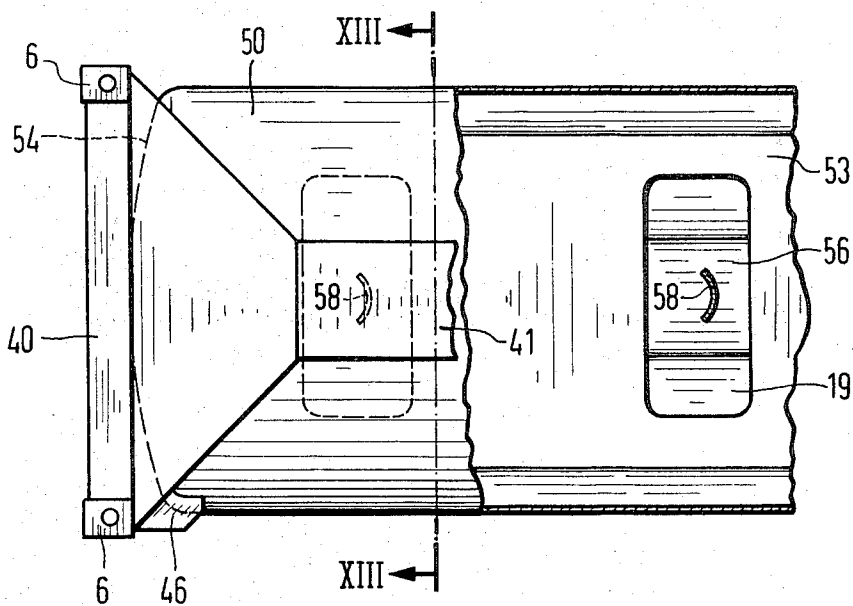


Fig.14



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Fig.15

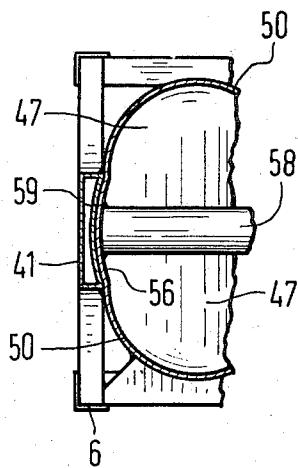


Fig.16

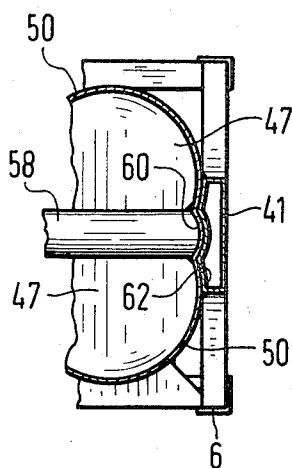


Fig.17

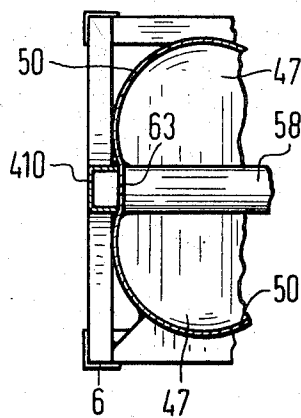
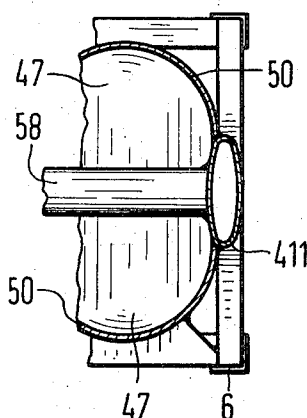


Fig.18



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Fig. 19

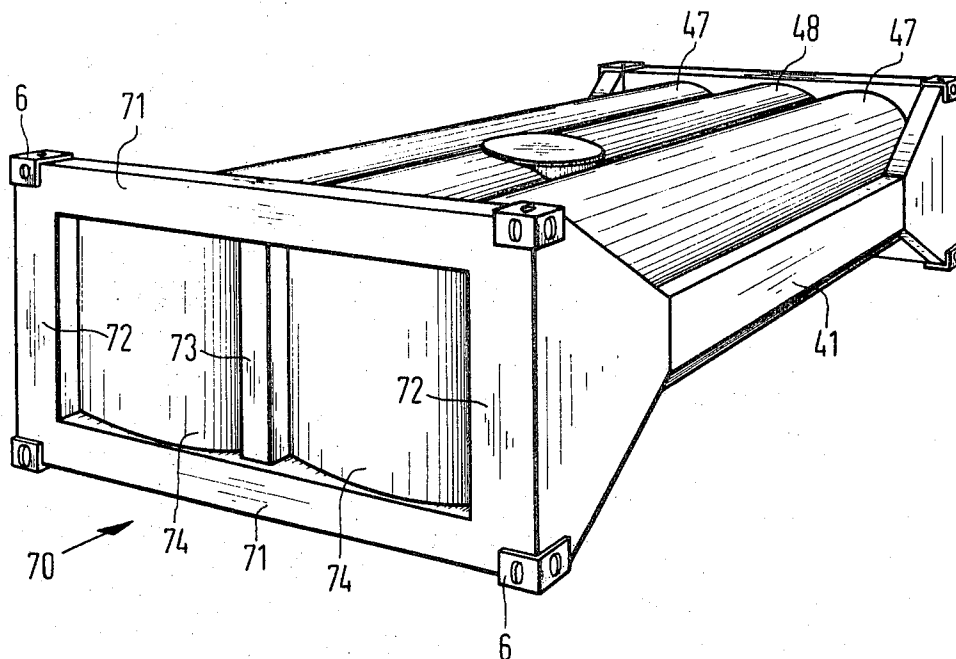
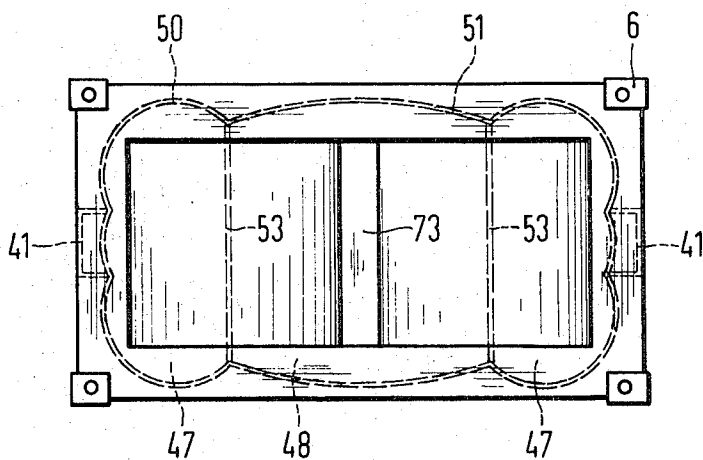


Fig. 20



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TRANSCONTAINER FOR FLOWABLE MATERIAL

BACKGROUND OF THE INVENTION

The invention relates to a transcontainer for flowable goods with a frame consisting of profiled frame members and a tank which is liquid-tight and comprises at least partially cylindrically domed external wall elements.

From German Publication Specification No. 1, 057,010 a pressure-resistant freight tank for liquids is known which comprises as support means a surge wall of corrugated sheet metal arranged centrally in the interior of the tank. The longitudinal edges of this surge wall includes flanges to be loosely inserted into U-shaped rails arranged on the floor and top of the tank. This surge wall is thus to act as a support element in a manner similar to a double-T-girder. However, this prior art surge wall is not suitable to take up major internal over-pressures, because the U-shaped rails into which the flanges are inserted would simply bend open.

Attempts to weld the edges of such an intermediate surge wall directly, or with interposition of a flange, with the flat or slightly outwardly domed tank outer walls, in order to render possible higher tension stressing of the intermediate wall, would probably be unsuccessful since, even with low internal excess pressures the stressing of the welded seams would be excessive for most commonly used materials.

These observations apply to an increased extent if one passes from the relatively small transport tanks of the kind described, which are intended for stacking side by side and one upon the other on a freight vehicle, to large transcontainers of the sizes presently in use for shipping various bulk commodities. In general, such transcontainers have a prescribed width of 8 feet (2,435 mm), a height of 4 feet (1,217 mm) or 5 feet 4 inches (1,620 mm) and a length between 10 and 40 feet (2,990 and 12,190 mm). The sole possibility of making liquid freight tanks of such dimensions pressure resistant was seen hitherto in the use of one or two cylindrical tanks of appropriate wall thicknesses, enclosed by a carrying framework, lying side by side. With such tubular and double-tubular liquid tanks, however, the space utilisation is very poor within the dimensions described above for transcontainers for flowable goods.

SUMMARY OF THE INVENTION

It is an object of the invention to provide a transcontainer having one or more longitudinally extending intermediate walls which can be subjected to such heavy tension stress that the container can withstand high pressures and thus becomes usable for the transport of dangerous liquids with high vapour pressure.

According to the invention, there is provided a transcontainer for flowable goods comprising a frame, a liquid-tight tank formed in said frame and including at least partially outwardly convex wall elements, and at least one intermediate wall within said liquid tight tank and connected to adjoining wall elements at an obtuse angle.

Further, according to the invention, there is provided a transcontainer for flowable goods comprising a frame having profiled frame members, corner fittings on said frame for stacking and lifting said transcontainer, a liquid-tight tank including at least partially cylindrically domed outer wall elements, and a longitudinally ex-

tending intermediate wall capable of withstanding tensile stress and connected at an obtuse angle with adjoining outer wall elements of said liquid-tight tank.

BRIEF DESCRIPTION OF THE DRAWINGS

The invention will now be further described in greater detail, by way of example with reference to the accompanying drawings:

FIG. 1 is an overall view of a partially broken-away transcontainer with outer wall elements inserted into individual frame areas and an intermediate wall according to a first embodiment of the invention;

FIG. 2 is a sectional view of the straight welded joint between the intermediate wall and the outer wall elements;

FIG. 3 is a sectional view of a joint between two wall elements, one of which merges jointlessly with the intermediate wall;

FIG. 4 is a sectional view of a joint between the intermediate wall and the outer wall elements using a junction profile of hollow circular section;

FIG. 5 is a view similar to FIG. 4 but using a junction profile of hollow substantially triangular section;

FIG. 6 is a view similar to FIG. 4 but using a junction profile of hollow rectangular section;

FIG. 7 is a view similar to FIG. 4 but using a junction profile of hollow semi-circular section;

FIG. 8 is a view similar to FIG. 4 but using a junction profile of solid substantially triangular cross-section;

FIG. 9 is a view similar to FIG. 4 but using a junction profile of star section;

FIG. 10 is a sectional view of a joint between the intermediate wall and the outer wall elements using an I sectioned member;

FIG. 11 is a sectional view of the joint of FIG. 10 modified for use at the bottom of the transcontainer;

FIG. 12 shows an overall view of a transcontainer according to a second embodiment of the invention, consisting of several part-cylindrical jackets connected by intermediate walls;

FIG. 13 shows a cross-sectional view taken along the line XIII—XIII in FIG. 14;

FIG. 14 shows a partially broken-away lateral elevation of the transcontainer of FIG. 12;

FIG. 15 is a view of the right hand part of FIG. 13 showing a variation of the attachment of the tank to the longitudinally extending beams;

FIG. 16 is a view of the left hand part of FIG. 13 showing a further variation of the attachment of the tank to the longitudinally extending beams;

FIG. 17 is a view similar to FIG. 15, but showing a still further variation of the attachment;

FIG. 18 is a view of the left hand part of FIG. 13 but showing a modified form of longitudinally extending beam;

FIG. 19 is an overall view of a modification of the transcontainer shown in FIGS. 12 to 14; and

FIG. 20 is an end view of the transcontainers shown in FIG. 19.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

Basically, the invention resides in that, in a transcontainer including a frame, a liquid-tight tank formed in the frame and including at least partially outwardly convex wall elements, one or more intermediate walls

is or are connected at an obtuse angle to the wall elements.

It has been observed by the applicant that the connections of the intermediate walls with the outer wall elements of the container, preferably made as welded seams, can be subjected to considerably higher tension stresses if the occurrence of additional bending stresses in the outer wall elements is largely avoided at these points. This can be achieved by providing that each outer wall element forms an angle of more than 90° with the intermediate wall abutting on it at the connection point.

The intermediate wall can be welded directly to the outer wall elements. To increase the strength, however, joint profiles (preferably connected with the frame) can be used which are introduced between the intermediate wall and the adjoining outer wall elements of the tank. The joint profiles can have various cross-sections (for example round or triangular) and can be made solid or hollow.

The invention is usable inter alia in a transcontainer, the frame of which is composed of vertical struts and horizontal beams which divide the wall surfaces into individual areas, while into each of the areas a partially cylindrically outwardly domed wall element is inserted in such a way that the wall elements in combination with the framework form a liquid, bending-resistant and torsion-resistant box girder with high security against buckling. By application of this invention, such a parallelepipedic liquid tank, as described in my co-pending U.S. application Ser. No. 802,391 can be made pressure-resistant.

In the case of very high pressure requirements admittedly the vertical struts of the above described construction must be stoutly reinforced so that the side walls do not sag too greatly. Thus a great increase of weight occurs.

In order to find a most favourable possible compromise between the space exploitation, the weight and the stability for a given pressure loading, according to a further development of the invention, it is proposed to form the liquid-tight tank enclosed by the framework so that it consists of two end walls and at least two partially cylindrical jackets intersecting one another with middle and lateral outer wall elements domed cylindrically about several longitudinal axes, the mutually opposite intersection lines of which are connected by intermediate walls. The middle and lateral outer wall elements preferably have different radii of curvature. The end walls of the container can consist of domed spherical sections, likewise mutually intersecting, with formed-on edge pieces of small corner radius or equally of correspondingly formed frames of the framework with inserted partially cylindrically domed outer wall elements.

For this last mentioned tank construction the framework preferably consists of two end frames and two beams extending on the longitudinal sides of the framework approximately in the middle of the height of the tank.

In this way, most of the constructional requirements which are important for liquid freight tanks can be fulfilled at the same time, namely pressure-resistance, low inherent weight, optimum space exploitation, height variable according to the desired load distributed over length, and stability, that is low centre of gravity.

In both tank construction embodiment of the present invention, the intermediate walls are preferably provided with apertures which permit a passage of liquid. These apertures can further serve for the free passage of transverse tie-rods which are preferably made arcuate and thus act as surge plates.

Referring now to the drawings, in FIG. 1 a transcontainer for flowable goods is illustrated which in general corresponds to the said U.S. Pat. application Ser. No. 802,391. The framework of this transcontainer consists of four buckling-resistant corner struts 1 which take up the stacking load, two lower transverse beams 2, two upper transverse beams 3, two lower longitudinal beams 4 and two upper longitudinal beams 5. The eight corner fittings 6 are constructed according to the requirements of ISO-TC 104 of cast steel, and serve for the hoisting and anchoring of the transcontainer. In each cast these corner fittings form the joint of the longitudinal and transverse girders which there encounter the corner struts. According to the length and height of the transcontainer, the longitudinal beams 4, 5 are additionally horizontally connected by lower transverse beams 7 and upper transverse beams 8 and vertically connected by intermediate struts 9.

The struts and beams consist, in the example of the embodiment as illustrated in FIG. 1, of rectangular hollow profiles, but other profile forms can also be used, especially for the lower longitudinal beams. All struts and girders can consist of standard structural steel, since if the tank is suitably formed they do not come into contact with the contents of the tank.

Outwardly domed wall elements 10 are welded into the areas formed by the struts of the framework. Similar wall elements 11, 12 form the bottom and top of the tank. These wall elements increase the resistance moment of the tank formed from framework and wall elements, and thus its rigidity. The bending axis of each of the wall elements on the side and end walls preferably extends vertically and that of each of the wall elements on the top and bottom of the tank preferably extends in the longitudinal direction of the tank. The wall elements 11 and 12 in the embodiments as represented in FIGS. 1 and 2 extend over the whole width of the tank, but consist of two part-cylindrical sections abutting in saddle manner in the middle.

In the middle of the end walls there are vertical intermediate struts 13. Between these inner struts and the connection points of the two part-cylindrical wall sections of the bottom and top elements 11 and 12 there is arranged a vertical intermediate wall 16 extending in the longitudinal direction. The upper edge of the intermediate wall 16 is welded at 17 with the junction point of the two part-cylindrical sections of the top elements 12 in such a way that the intermediate wall forms obtuse angles with both wall sections. The same applies to the junction point 18 represented in detail in FIG. 2, where the intermediate wall 16 is welded to the bottom elements 11.

The intermediate wall 16 takes up the pressure forces exerted upon bottom and top and acts as tie-rod. By virtue of the construction of the junction points as described the tension forces are introduced into the wall elements forming the bottom and top in such a way that no appreciable additional bending stresses occur therein.

The intermediate wall can at the same time take over the function of a surge plate for the container contents.

It is preferably provided with apertures 19 in order to render possible an exchange of liquid between the two chambers of the tank formed by the intermediate wall.

The intermediate wall can consist of smooth sheet metal as represented in FIGS. 1 and 2. For protection against over-stressing due to lateral rolling movements, however, it can also be reinforced in known manner by corrugations, beads or the like.

The domed wall elements and the intermediate walls consist of a material with a corrosion-resistant surface, preferably of high-grade steel. It is advisable to connect the wall elements with the beams and struts so that the latter come little into contact with the tank contents, if at all, and thus can consist entirely or predominantly of cheap structural steel.

Further examples of embodiment for the connection of this intermediate wall with the outer wall elements are illustrated in FIGS. 3 to 11.

In the form of embodiments according to FIG. 3, the one bottom element 20 merges seamlessly into the lower part of the intermediate wall 160. At the transition point 18 the adjoining bottom element 201 is butt-welded thereto.

In order to increase the stability of the tank for great pressure stresses, the junction points where the intermediate wall meets with outer wall elements of the tank can be reinforced by junction profiles. If these junction profiles extend entirely or partially in the interior of the tank, they must likewise consist of high-grade steel or the like. The junction profiles should be as bending-resistant as possible, for which a tubular cross-section is especially suitable.

By way of example, the junction profile can be formed according to FIG. 4 as cylindrical tube 28. If the attachment points of the top elements 121 and of the intermediate wall 16 are distributed uniformly on the periphery of the tube 28, an especially uniform stressing thereof occurs with a force transmission free from bending stresses, and T-welded seams can be formed everywhere. It is, however, also possible to shift the attachment points of the top elements 121 to the under side of the tube 28, so that the edges of the top elements abut against the intermediate wall 16 and can possibly be additionally welded thereto. Thus the upper junction profile 28 can be permitted to extend outside the tank.

Instead of circular, the tubular junction profile can also be made non-circular, for example; oval or triangular as shown at 61 in FIG. 5.

A box-shaped rectangular profile 29 is advisable for example in the case of the use of a corrugated intermediate wall 21, (FIG. 6) on account of the flat under side of the beam 29, to which the corrugations 21 can be welded in a simpler manner. The top elements 122 are here provided with vertical extensions 27 which are welded to the side walls of the rectangle 29. A closed semi-circular profile 30 (FIG. 7) is also suitable for the fastening of a corrugated intermediate wall 21.

In place of the hollow profiles as described, solid profiles can equally well be used. By way of example a solid triangular profile 31 is represented in FIG. 8. Since in this case there is hardly any fear of sacrifices of strength due to corrosion, the profiles 31 can equally consist of structural steel instead of high-grade steel, with appropriate surface protection.

A further possible solution is illustrated in FIG. 9. Here the upper junction profile consists of a beam 32

with star-shaped cross-section to the arms of which the top elements 121 and the intermediate wall 16 are butt-welded.

Finally, it is also possible to shift the upper junction profile outwards entirely out of the interior of the tank, so that it cannot come into contact with the contents of the tank and thus does not need to be corrosion-resistant. Such a solution is illustrated in FIG. 10. Here the top elements 123 merge into one another by means of an approximately semi-circular bead 33. The intermediate wall 16 is welded to the downwardly directed apex of the beam 33. An I-shaped bead 34 is welded into the bead 33 on the outside of the wall elements 123.

Since the bottom has to withstand an increased static loading, it is advisable here to introduce an especially bending-resistant junction profile, for example an I-beam. This leads for example to a solution similar to FIG. 10, which is represented in FIG. 11. A U-shaped junction profile 36 of high-grade steel is welded on to the I-shaped beam 35. On the one hand the intermediate wall 16 and on the other the domed bottom elements 111 are welded to the upper side thereof in such a way that the angle of the intermediate wall 16 with the bottom elements 111 is greater than 90°. The tubularly closed parts 33, 36 possess a certain elasticity and thus guarantee increased security against dynamic loading despite the largely rigid I-beams 34 and 35 firmly connected with the frame.

All the solutions discussed hitherto for the securing of the intermediate wall to the top elements are likewise suitable for the connection of the intermediate wall with the bottom elements and vice versa. Moreover the examples of embodiments as described and illustrated for the mentioned connections are independent of the construction of the framework and the nature of the liquid tank and its connection with the framework.

In the case of very high pressures, the side walls of the container construction as described hitherto must be reinforced with heavy U-profiles (inner struts) and stiffeners in order to withstand the test pressure. Such reinforcements are superfluous where horizontal cylindrically domed liquid tanks are used. Hereinafter a transcontainer will be described which comprises such horizontal cylinder jackets and nevertheless better exploits the available space than is the case, for example, with double-tube tank containers.

The transcontainer as represented in FIGS. 12 to 14 possesses a self-contained carrier framework which consists of two rectangular end frames 40 and two longitudinal beams 41 connecting the end frames. The end frames each comprise two horizontal transverse beams 42 and two vertical struts 43. Corner fittings 6 of the above-described kind are inserted at the connections thereof.

The framework encloses a liquid-tight tank 45 which rests upon saddles 46 secured to the end frames 40 and is firmly connected with the longitudinal beams 41.

The tank 45 consists of two symmetrical side parts 47 and a middle part 48. All three parts have the form of more or less flattened tubular sections, that is to say, they consist of mutually intersecting part-cylindrical jackets, the outer wall elements of which are domed in shell-form about different longitudinal axes. The radius of curvature of the outer wall elements 50 forming the lateral jackets 47 is substantially smaller in the example

according to FIG. 13 than the radius of curvature of upper and lower outer wall elements 51 forming the middle jacket 48. In this way a low frame cross-section can be extensively exploited.

By the selection of suitable ratios of the radii of curvature of the lateral and middle cylinder jackets the form of the container can be adapted easily in an optimum manner to the ratio of height and width of the transcontainer desired in each case.

The mutually opposite connection points 52 of the middle and lateral wall elements 50 and 51 are connected with one another by vertical intermediate walls 53. The connections 52 are made so that the intermediate walls are connected at obtuse angles with the other wall elements. The connection can be made for example as in one of FIGS. 2 to 11.

The end walls of the container consist of mutually intersecting domed part-spherical sections 54 with formed-on edge pieces 55 of small corner radius. The edge pieces are butt-welded with the cylindrical wall elements 50 and 51.

The longitudinal beams 41 in the example of the embodiment according to FIGS. 12 and 13 have a U-shaped cross-section. Their ends are rigidly connected with the end frames. The longitudinal beams serve to prevent lateral outward buckling of the tank. In the region of the longitudinal beams the tank is preferably provided with slightly domed outer wall elements 56 to which the longitudinal beams 41 are welded.

In order to prevent bending outwards of the longitudinal beams under internal pressure, at certain intervals horizontal tie-rods 58 are provided extending transversely of the longitudinal beams, the two ends of which tie-rods are welded with the longitudinal beams 41. The tie-rods 58 preferably have an arcuate cross-section and are guided freely through apertures 19 of the intermediate walls 53. The arcuate curvature effects both an increased bending resistance and a surge damping.

FIG. 15 shows a variant of the right-hand part of FIG. 13. The tie-rods 58 here are not guided through the wall elements 56 of the tank to the longitudinal beams 41, but welded directly with the wall elements 55 and a reinforcing plate 59 adapted to form thereof and forming a part of the longitudinal beams 41.

In the variant according to FIG. 16 the lateral outer wall elements 50 are drawn through the inside of the longitudinal beam 41 and connected only by a narrow curved transition plate 60, the width of which corresponds to that of the tie-rod 58.

The variant of FIG. 17 corresponds to FIG. 16 except that here a longitudinal beam 410 is provided, the width of which is not substantially greater than that of the straight transition plate 63. There they are welded with a reinforcement plate 62 of the longitudinal beam.

In place of the U-shaped longitudinal beams 41, 410 a longitudinal beam with closed cross-section can also be used. The detail in FIG. 18 shows such a solution. The longitudinal beam 411 here has the form of a flattened tube to which the upper and lower lateral wall elements 50 are directly butt-welded. The one half of the tube cross-section 411 is situated outside and the other half inside the liquid tank. Within the liquid tank the tie-rods 58 are welded to the tube cross-section 411. This arrangement of FIG. 8 is advantageous as regards welding technique; however, in contrast to the variants

in FIGS. 12 to 17, the longitudinal beams must consist of high-grade steel.

In the variant of the last described form of embodiment as illustrated in FIGS. 19 and 20 the framework forms an inseparable part of the liquid tank. The end edges of the wall elements 50 and 51, of which the part cylindrical jackets 47 and 48 consist, are butt-welded to correspondingly widened transverse beams 71 and vertical struts 72 which form frames 70 closed at the ends. A middle strut 73 divides the frame into two areas into which part cylindrically domed outer wall elements 74 are inserted in liquid-tight manner, similarly to the first embodiment shown in FIG. 1. The horizontal transverse beams and the vertical struts of the end frames 70 in this embodiment consist of high-grade steel, at least in those parts which can come into contact with the contents of the tank.

Again corner fittings are inserted into the corners of the end frames. In the above-described manner the end frames are connected by longitudinal beams 41. The form of the longitudinal beams and their connection with the outer wall elements of the liquid container can correspond to one of the variants according to FIGS. 13 to 18. The rest of the construction of the transcontainer also conforms with that according to FIGS. 12 to 14.

The last-described variant has various advantages over that according to FIGS. 12 to 14. Thus the space exploitation at the end is improved, and also the fitting of the saddles, which is complicated in design and welding is eliminated. Also the multi dimensionally domed ends with complicated welded connections are saved.

It will be understood that the above description of the present invention is susceptible to various modifications, changes and adaptations.

What is claimed is:

1. A transcontainer for flowable goods comprising: a frame having profiled frame members, corner fittings on said frame for stacking and lifting said transcontainers, a liquid-tight tank including two end walls and three partly cylindrical jackets, adjacent ones of said partly cylindrical jackets mutually intersecting one another, said part cylindrical jackets providing middle and lateral outer wall elements cylindrically domed about several longitudinal axes, and intermediate walls joining mutually opposite lines of intersection of said part cylindrical jackets, said intermediate walls being connected to wall elements of said part cylindrical jackets at an obtuse angle, said frame being disposed to support said tank, wherein said walls of said liquid-tight tank comprise domed sphere sections with formed on edge pieces of smaller corner radius, the adjacent domed sphere sections being mutually intersecting with one another.

2. A transcontainer as defined in claim 1, wherein each said end wall comprises vertical struts and horizontal beams which form a closed frame portion of said frame and partially cylindrically domed outer wall elements positioned in said closed frame portion.

3. A transcontainer for flowable goods comprising: a frame having profiled frame members, corner fittings on said frame for stacking and lifting said transcontainer, a liquid-tight tank including two end walls and three partly cylindrical jackets, adjacent ones of said partly cylindrical jackets mutually intersecting one another, said part cylindrical jackets providing middle and lateral outer wall elements cylindrically domed

about several longitudinal axes, and intermediate walls joining mutually opposite lines of intersection of said part cylindrical jackets, said intermediate walls being connected to wall elements of said part cylindrical jackets at an obtuse angle, said frame being disposed to support said tank, wherein said frame comprises two end frame portions and two beams extending on longitudinal sides of said frame approximately at the middle of the height of said liquid-tight tank.

4. A transcontainer as defined in claim 3, wherein said longitudinally extending beams comprise beams of U-shaped cross-section.

5. A transcontainer as defined in claim 3, wherein said longitudinally extending beams comprise beams of closed cross-section to which adjoining outer wall elements are butt-welded.

6. A transcontainer as defined in claim 3, further comprising horizontal tie rods extending transversely of said longitudinally extending beams to which said tie rods are connected.

7. A transcontainer as defined in claim 6, wherein said intermediate walls define openings through which said tie rods may pass freely.

8. A transcontainer as defined in claim 7, wherein said horizontal tie rods comprise rods of arcuate cross-section.

9. A transcontainer as defined in claim 3, characterized in that the radius of the middle wall elements is the same as the radii of said lateral outer wall elements.

10. A transcontainer according to claim 1, wherein the radius of the part cylindrical jacket forming said middle wall element differs from the radius of each of the part cylindrical jackets forming said lateral wall elements.

11. A transcontainer according to claim 10, wherein the radius of the part cylindrical jacket forming said middle wall element is greater than the radius of each of the part cylindrical jackets forming said lateral wall elements.

12. A transcontainer according to claim 1, wherein said frame comprises two end frame portions and two beams extending on longitudinal sides of said frame approximately at the middle of the height of said liquid-tight tank.

13. A transcontainer according to claim 12, wherein said longitudinally extending beams comprise beams of U-shaped cross-section.

14. A transcontainer according to claim 12, wherein said longitudinally extending beams comprise beams of closed cross-section to which adjoining outer wall elements are butt-welded.

15. A transcontainer according to claim 12, further comprising horizontal tie rods extending transversely of said longitudinally extending beams to which said tie rods are connected.

16. A transcontainer according to claim 15, wherein said intermediate walls define openings through which said tie rods may pass freely.

17. A transcontainer according to claim 16, wherein said horizontal tie rods comprise rods of arcuate cross-section.

18. A transcontainer according to claim 1, characterized in that the radius of the middle wall elements is the same as the radii of said lateral outer wall elements.

19. A transcontainer according to claim 3, wherein the radius of the part cylindrical jacket forming said middle wall element differs from the radius of each of

the part cylindrical jacket forming said lateral wall elements.

20. A transcontainer according to claim 19, wherein the radius of the part cylindrical jacket forming said middle wall element is greater than the radius of each of the part cylindrical jackets forming said lateral wall elements.

21. A transcontainer according to claim 3, wherein each said end wall comprises vertical struts and horizontal beams which form a closed frame portion of said frame and partially cylindrically domed outer wall elements positioned in said closed frame portion.

22. A transcontainer for flowable goods comprising a frame and a liquid-tight tank supported by said frame, said frame including two rectangular end frame portions provided with corner fittings for stacking and lifting said transcontainer and two beams extending on longitudinal sides of said frame, said tank including two end walls and several part cylindrical jackets of which adjacent ones of the part cylindrical jackets provide middle and lateral outer wall elements cylindrically domed about several longitudinal axes, and intermediate walls joining mutually opposite lines of intersection of said part cylindrical jackets connected to the wall elements of said part cylindrical jackets at an obtuse angle.

23. A transcontainer as defined in claim 22, wherein said beams extend approximately at the middle of the height of said liquid-tight tank.

24. A transcontainer as defined in claim 22, wherein said two beams interconnect said two end frame portions.

25. A transcontainer according to claim 22, wherein the radius of the part cylindrical jacket forming said middle wall element differs from the radius of each of the part cylindrical jackets forming said lateral wall elements.

26. A transcontainer according to claim 22, wherein said end walls of said liquid-tight tank comprises domed sphere sections with formed on edge pieces of smaller corner radius and wherein adjacent domed sphere sections mutually intersect with one another.

27. A transcontainer according to claim 22, wherein each said end wall comprises vertical struts and horizontal beams which form a closed frame portion of said frame and partially cylindrically domed outer wall elements positioned in said closed frame portion.

28. A transcontainer according to claim 22, wherein said longitudinally extending beams comprise beams of U-shaped cross-section.

29. A transcontainer according to claim 22, wherein said longitudinally extending beams comprise beams of closed cross-section to which adjoining outer wall elements are butt-welded.

30. A transcontainer according to claim 23, further comprising horizontal tie rods extending transversely of said longitudinally extending beams to which said tie rods are connected.

31. A transcontainer according to claim 30, wherein said intermediate walls define openings through which said tie rods may pass freely.

32. A transcontainer according to claim 31, wherein said horizontal tie rods comprise rods of arcuate cross-section.

33. A transcontainer according to claim 22, wherein only two beams are provided, one beam being on each of opposite sides of said tank and interconnecting said end frame portions with one another.

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